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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/787,064	03/12/2001	Michael B. Cain	CAIN11-9-1	6073

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EXAMINER

COLAIANNI, MICHAEL

ART UNIT PAPER NUMBER

1731

DATE MAILED: 02/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/787,064

Applicant(s)

Cain et al.

Examiner

Michael Colaianne

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Mar 12, 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 14-22 is/are rejected.
- 7) ☒ Claim(s) 12 and 13 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 3 6) ☐ Other:

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Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5, line 4, refers to "said aqueous" which lacks antecedent basis. It is suggested that --solution-- be inserted after "aqueous" in claim 5.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 4-6, 7, 11, 14-15, 16 and 20-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Randall 3883336.

Randall teaches atomizing a non-aqueous liquid reactant and an aqueous solution to form an aerosol comprising numerous liquid droplets (col. 2, lines 5-8, 30-36, 41-51); delivering said aerosol into a combustion zone and reacting said aerosol in a flame provided at said combustion

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zone to form finely divided glass soot particles (Fig. 1, ref. no. SiCl₄, Solution of Dopant, Aerosol, Flame and Burner).

Randall also teaches that the non-aqueous liquid is a solution (Fig. 1, ref. no. Solution of Dopant; col. 2, lines 45-50).

Randall also teaches that the non-aqueous liquid reactant has at least one precursor and at least one dopant (col. 2, lines 5-15, 45-50).

Randall teaches atomizing a liquid first stream in a first burner and a vaporous second stream in a second burner and then vaporizing the first and second streams adjacent the first and second burner, respectively, to form a single soot stream (col. 2, lines 5-64, col. 3, lines 16-21).

Randall also teaches using silicon tetrachloride as the silicon source material (col. 4, lines 1-11).

Randall also teaches using an alkali metal acetate as the salt (col. 2, lines 46-52).

5. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Hawtof et al. WO 97/22553.

Hawtof et al. teaches delivering a non-aqueous liquid reactant and an aqueous solution to a burner assembly (page 17, lines 14-29); discharging the non-aqueous liquid reactant and the aqueous solution from the burner assembly into a flame as an aerosol comprising a plurality of non-aqueous liquid reactant droplets and a plurality of liquid aqueous solution droplets (page 17, lines 14-29, Figs 1-4); reacting the plurality of non-aqueous liquid reactant droplets and the

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plurality of liquid aqueous solution droplets in the flame to produce soot (claim 1; Figs. 1-4); and depositing the soot onto a target (Fig. 4).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
8. Claims 8-10, 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randall 3883336 in view of Hawtof et al. WO 97/22553.

Randall teaches applicant's claimed invention. See the 35 U.S.C. §102(b) rejection for Randall's teachings. Randall also teaches that the aqueous solution may use an alkali metal acetate

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(col. 2, lines 45-52). Randall also teaches the non-aqueous liquid comprises a dopant (col. 2, lines 5-15, 45-52). However, Randall does not teach that the non-aqueous liquid comprises a siloxane.

However, Hawtof et al. teaches that it is known to use siloxane as a non-aqueous liquid precursor in making optical fiber blanks (page 19, lines 29-31). Moreover, Randall teaches that the silicon forming material may be of any of a number of silicon compounds (col. 4, lines 1-11).

It would have been prima facie obvious at the time the invention was made to combine Hawtof et al.'s teachings with Randall's method of making silicon dioxide glass particles because Randall teaches that any of a number of well known silicon forming materials may be used and to further increase the versatility of the soot forming process.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Randall 3883336 in view of Kenichi JP 57-183089.

Randall teaches applicant's claimed invention. See the 35 U.S.C. §102(b) rejection above for Randall's teachings. However, Randall does not teach delivering the non-aqueous liquid reactant and the aqueous solution to a single burner prior to atomizing the liquid reactants.

However, Kenichi teaches that it is known to deliver a liquid material and a gaseous solution to a single burner prior to atomizing (Figure and English abstract from "Patent Abstracts of Japan").

It would have been prima facie obvious at the time the invention was made to combine Kenichi's teachings with Randall's method of making silica soot because doing so will produce a

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more uniform and homogeneous mixing of the silicon forming material and dopant.

Allowable Subject Matter

10. Claims 12-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: none of the prior art examined taught or fairly suggested a method of making an optical fiber preform which includes the step of discharging a non-aqueous liquid reactant and an aqueous solution from the burner assembly into a flame by atomizing the non-aqueous liquid reactant and the aqueous solution to form an aerosol comprising a plurality of non-aqueous liquid reactant droplets mixed with a plurality of liquid aqueous solution droplets.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Colaianni whose telephone number is 703-305-5493. The examiner can normally be reached on Monday to Friday from 8:00 AM to 4:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin, can be reached on (703) 308-1164. The fax phone number for the organization where this application or proceeding is assigned is 703-305-7115.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

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February 24, 2003

A handwritten signature in black ink, appearing to read "Michael Colaianni". The signature is fluid and cursive, with a long horizontal stroke at the end.

**MICHAEL COLAIANNI
PRIMARY EXAMINER**